

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No. : 09/943,562
Applicant : Doyle et al.
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Title : EFFICIENTLY SERVING LARGE OBJECTS
IN A DISTRIBUTED COMPUTING NETWORK
Docket No. : RSW920010161US1
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APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Sir:

This Appeal Brief is filed pursuant to the "Notice of Appeal to the Board of Patent Appeals and Interferences", filed August 13, 2007 and the Notice of Panel Decision from Pre-Appeal Brief Review, mailed November 13, 2007.

Real Party In Interest

The Real Party in Interest in the present Appeal is International Business Machines Corporation Armonk, New York, the assignee, as evidenced by the assignment set forth at Reel/Frame 012142/0867.

Related Appeals and Interferences

The appellant is aware of no appeals or interferences that would be affected by the present appeal.

Status of the Claims

Claims 45, 46, 48-79, 82-98 and 103-104 are pending in this application. Claims 45, 46, 48, 49, 51-79, 82-98, 103 and 104 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 6,173,322 B1 to Hu (hereinafter, *Hu* '322) in view of U.S. Patent

No. 6,535,518 B1 to Hu et al. (hereinafter, *Hu '518t*) in further view of Fielding et al. RFC 2068 HTTP/1.1 (hereinafter, '*Fielding*') as noted in the Office Action made Final mailed May 14, 2007. Claim 50 stands finally rejected under 35 U.S.C. §103(a) as being unpatentable over *Hu '322* in view of *Hu '518*, *Fielding* and in further view of U.S. Pat. No. 6,658,463 to Dillon (hereinafter, *Dillon '463t*) also as noted in the Office Action made Final mailed May 14, 2007. The rejection of claims 45, 46, 48-79, 82-98 and 103-104 is appealed. The claims at issue are attached hereto as Appendix A.

Status of Amendments

No amendments were filed subsequent to the Office action finally rejecting claims 45, 46, 48-79, 82-98 and 103-104 as noted in the Office Action made Final mailed May 14, 2007.

Summary of Claimed Subject Matter

The claimed invention is directed to providing techniques for improving the serving of content in a distributed computing network that includes an intelligent storage system by reducing the processing load and network traffic on Web servers in the network path, allowing such Web servers to operate more efficiently and to serve more requests. As an example, client requests for content meeting predefined criteria (or criterion) may be served from an intelligent storage device in a manner that eliminates an associated Web server from the return path¹.

Independent claim 45 is directed to a method of serving objects in a computing network, (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 2, 48, 76) the method comprising:

receiving a request from a sender for an object stored on an intelligent storage system, the request being received by a web server (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 48, 65; Fig. 8-Blocks 800 and 810, Fig. 10-Block 1000), and the intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 11, 12; Fig. 2);

¹ See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraph 40; Abstract.

evaluating the request for the object based upon at least one predetermined criterion (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 55-59; Figs. 9-Block 900, Fig. 11-Block 1105);

returning a response message from the web server to the sender if the at least one predetermined criterion is met, wherein the response message includes a location of the object on the associated storage device of the intelligent storage system (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 50, 66; Figs. 8, 9-Block 910, Fig. 11-Blocks 1110 and 1115), and the sender utilizes the response message to obtain the object in a manner that bypasses the web server for outbound traffic from the intelligent storage system to the client (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 51, 65, 66; Figs. 8, 10); and serving the stored object from the intelligent storage system to the sender via the web server if the at least one predetermined criterion is not met (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraph 68; Fig. 11-Blocks 1120, 1125, 1130, 1135, 1140, 1145, 1150).

Independent claim 74 is directed to a method of creating a link to an object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 42-46, 76), the method comprising:

receiving a request for a particular object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 48, 65; Fig. 8-Blocks 800 and 810, Fig. 10-Block 1000) that is stored in an intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 11, 12; Fig. 2);

evaluating at least one characteristic of the particular object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 55-59; Figs. 9-Block 900, Fig. 11-Block 1105);

retrieving a redirect file that instructs a web server receiving the request to return a response message including the location of the requested object on the associated storage device of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 46, 66; Figs. 7, 8, Fig. 11-Blocks 1110 and 1115), the response message being configured to redirect the request to the control unit of the intelligent storage system (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 40, 46, 48; Figs. 7, 8, 12); and locating an object

serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the evaluated at least one characteristic of the particular object is not satisfied (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraph 68; Fig. 11-Blocks 1120, 1125, 1130, 1135, 1140, 1145, 1150).

Independent claim 82 is directed to a system for serving objects in a computing network (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 2, 48, 76), comprising:

an intelligent storage system comprising a control unit configured to determine a mapping for a request for an object to a location on an associated storage device (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 11, 12; Fig. 2); and

a web server configured to receive the request by a sender for an object stored on the intelligent storage system (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 48, 65; Fig. 8-Blocks 800 and 810, Fig. 10-Block 1000), the web server being configured to evaluate the request based on at least one criterion (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 55-59; Figs. 9-Block 900, Fig. 11-Block 1105), and if the at least one criterion is met, returning a response message to the sender to redirect the request to the control unit of the intelligent storage system, wherein the redirect code includes a location of the object on the associated storage device of the intelligent storage system, (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 50, 66; Figs. 8, 9-Block 910, Fig. 11-Blocks 1110 and 1115) and the sender utilizes the response message to obtain the object in a manner that bypasses the web server for outbound traffic from the intelligent storage system to the client without transferring a corresponding session between the web server and the sender to a different web server (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 51, 65, 66; Figs. 8, 10) and if the at least one criterion is not met, to serve the stored object via the web server (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraph 68; Fig. 11-Blocks 1120, 1125, 1130, 1135, 1140, 1145, 1150).

Independent claim 86 is directed to a system for creating a link to an object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 42-46, 76), the system comprising:

an intelligent storage system comprising a control unit configured to determine a mapping for a request for a particular object to a location on an associated storage device (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 11, 12; Fig. 2);

a web server configured to receive the request for the particular object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 48, 65; Fig. 8-Blocks 800 and 810, Fig. 10-Block 1000) and to evaluate at least one characteristic of the particular object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 55-59; Figs. 9-Block 900, Fig. 11-Block 1105);

wherein the web server is configured to retrieve a redirect file that instructs the web server receiving the request to return a response message including the location of the particular object on the associated storage device of the intelligent storage system (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 46, 66; Figs. 7, 8, Fig. 11-Blocks 1110 and 1115), the response message being configured to redirect the request to the control unit of the intelligent storage system if the at least one evaluated characteristic of the particular object is met (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 40, 46, 48; Figs. 7, 8, 12), and to locate an object serving link that is utilized by the web server receiving the request to obtain the particular object in response to the request if the evaluated characteristic of the particular object is not met (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraph 68; Fig. 11-Blocks 1120, 1125, 1130, 1135, 1140, 1145, 1150).

Independent claim 87 is directed to a computer program product for serving objects in a computing network (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 2, 48, 76-78), the computer program product comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code configured to receive a request for an object stored on an intelligent storage system, the request being received by a web server (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 48, 65; Fig. 8-Blocks 800 and 810, Fig. 10-Block 1000), and the intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 11, 12; Fig. 2);

computer readable program code configured to evaluate the request based on at least one criterion (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 55-59; Figs. 9-Block 900, Fig. 11-Block 1105);

computer readable program code configured to return a response message from the web server to a sender if the at least one predetermined criterion is met, wherein the response message includes a location of the object on the associated storage device of the intelligent storage system (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 50, 66; Figs. 8, 9-Block 910, Fig. 11-Blocks 1110 and 1115), and the sender utilizes the response message to obtain the object in a manner that bypasses the web server for outbound traffic from the intelligent storage system to the client without transferring a corresponding session between the web server and the sender to a different web server (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 51, 65, 66; Figs. 8, 10); and

computer readable program code configured to serve the stored object via the web server if the at least one criterion is not met (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraph 68; Fig. 11-Blocks 1120, 1125, 1130, 1135, 1140, 1145, 1150).

Independent claim 96 is directed to a computer program product for creating a link to an object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 42-46, 76-78), the computer program product comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code configured to receive a request for a particular object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 48, 65; Fig. 8-Blocks 800 and 810, Fig. 10-Block 1000) in an intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 11, 12; Fig. 2); computer readable program code configured to evaluate at least one characteristic of the particular object (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 55-59; Figs. 9-Block 900, Fig. 11-Block 1105);

computer readable program code configured to retrieve a redirect file that instructs a web server receiving the request to return a response message including the location of the particular

object on the associated storage device of the intelligent storage system (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 46, 66; Figs. 7, 8, Fig. 11-Blocks 1110 and 1115), the response message being configured to redirect the request to the control unit of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraphs 40, 46, 48; Figs. 7, 8, 12); and

computer readable program code configured to locate an object serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the at least one evaluated characteristic of the particular object is not satisfied (See for example, appellant's U.S. Pat. Pub. No. 2003/0046335, paragraph 68; Fig. 11-Blocks 1120, 1125, 1130, 1135, 1140, 1145, 1150).

Grounds of Rejection To Be Reviewed On Appeal

1. Whether Claims 45, 46, 48-49, 51-79, 82-98, 103 and 104 are unpatentable under 35 U.S.C. §103(a) over *Hu* '322 in view of *Hu* '518 and *Fielding*.
2. Whether Claim 50 is unpatentable under 35 U.S.C. §103(a) over *Hu* '322 in view of *Hu* '518 and *Fielding* and further in view of *Dillon* '463.

1. A. Introduction to 35 U.S.C. §103(a) Analysis

According to the M.P.E.P. §706.02(j), to establish a *prima facie* case of obviousness, the prior art references must teach or suggest all the claim limitations². It is the appellant's position that a *prima facie* case of obviousness has not been established that is sufficient to support a rejection of the pending claims set out herein as the prior art references, even when combined, fail to teach or suggest all of the claim limitations.

1. B. Claims 45, 82 and 87, and the claims that depend therefrom are patentable over *the* '322 *patent* in view of *the* '518 *patent* and *Fielding*

² See also, *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143 - § 2143.03

Claims 45, 82 and 87 are directed to serving objects in a method (claim 45), system (claim 82) and computer program product (claim 87) format. The elements are analogous and the Examiner's basis for rejection of each of these claims is identical³. As such, for relevant purposes herein, the arguments set out more fully herein apply by analogy. For purposes of discussion, claim 45 will be discussed.

With regard to claim 45, *Hu '322* in view of *Hu '518* and *Fielding* fail to teach or suggest at least:

A method of serving objects in a computing network... comprising
... returning a response message from a web server to a sender if at least one predetermined criterion is met, wherein the response message includes a location of an object on an associated storage device of an intelligent storage system where the sender utilizes the response message to obtain the object from the intelligent storage system and
... serving the stored object from the intelligent storage system to the sender via the web server if the at least one predetermined criterion is not met.

Hu '322, the primary reference cited and relied upon by the Examiner, teaches a network request manager 102 that handles client requests directed to a web site. In this regard, the network request manager 102 acts as an *intermediary* between a client 104 and one or more content servers 106 by servicing the client in either a *proxy mode* or a *redirect mode*. Notably, the request manager handles requests by selecting a content server 106 to service *each* request and by causing a connection to be established with the selected content server 106 so that the request may be fulfilled⁴ by the selected content server. In this regard, the actions taken by content server 106 to satisfy the client request are referred to in *Hu '322* collectively as "servicing" a client request⁵ and may include any interaction, such as to read (or write) certain data, to engage a particular interactive application, to exchange information between client 104 and an interactive application, or any other interaction between two computers⁶. As such, it is the content servers 106 that service each request, including providing the content sought by the client request regardless of whether the network request manager operates in proxy or redirect mode⁷.

³ See the Office Action made final, mailed 05/14/2007, page 13, second full paragraph.

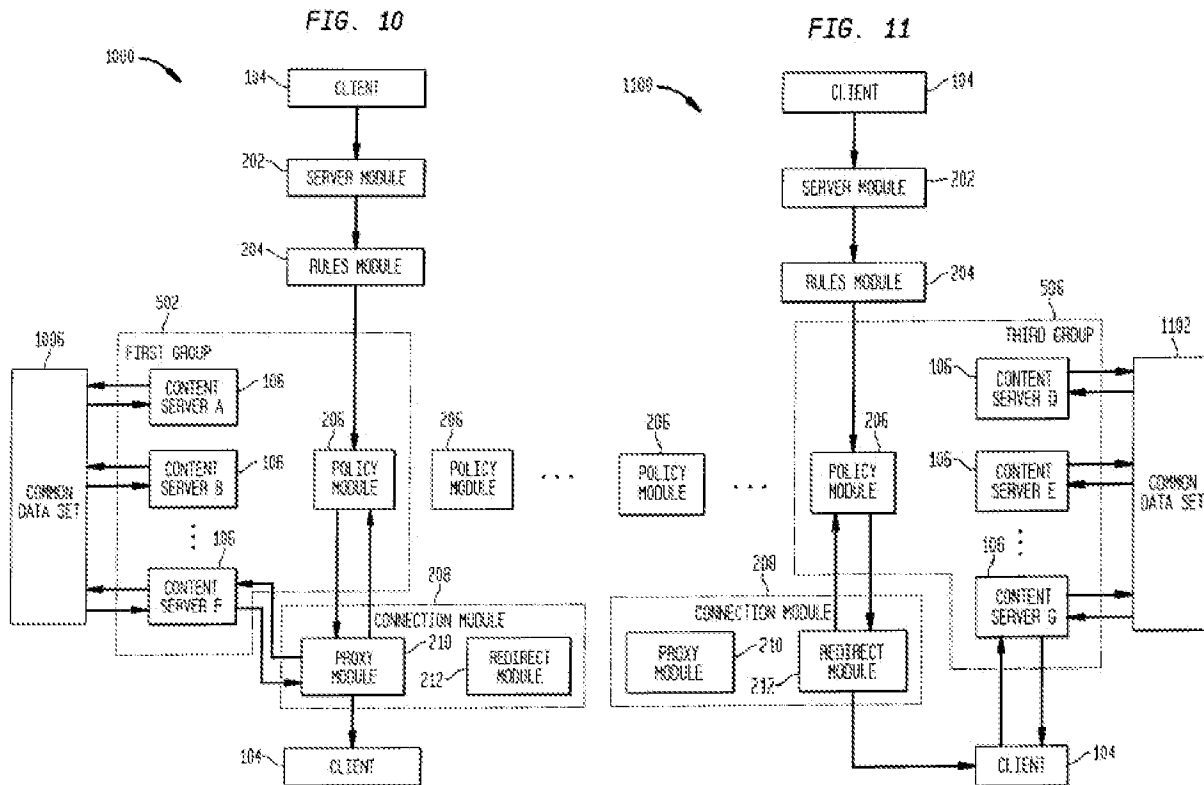
⁴ See *Hu '322*, Col. 4 lines 4-12.

⁵ See *Hu '322*, Col. 4 lines 30-32.

⁶ See *Hu '322*, Col. 4, lines 25-29.

⁷ See *Hu '322*, Col. 4 lines 33-43.

In proxy mode, the network request manager acts on behalf of the client by forwarding client requests to the selected content server for servicing and by returning the results from the selected content server to the client. The proxy mode is described with reference to Fig. 10, which is reproduced in relevant part for purposes of discussion below⁸.



In particular, when operating in proxy mode, the network request manager receives a client request from client. In response to the client request, the network request manager selects an appropriate content server 106 and forwards the client request on to the selected content server. Notably, the content servers 106 are responsible for processing the client request, including accessing data stored in the common data set 1006. In this regard, the common data set may include either data, such as retrieved by the selected content server from a database, or an application or common set of applications⁹. The selected content server 106 services the client request and returns the results to network request manager 102, which merely passes the results generated by the content servers 106 on to client 104. In this configuration, the network

⁸ See *Hu* '322, Col. 3, lines 54-59; Col. 11, lines 4-16; Col. 11, line 36-Col. 12, line 8; Figs. 9A, 10.

⁹ See *Hu* '322, Col. 7, lines 15-22.

request manager acts as a proxy for client and it appears to client that network request manager has serviced the client request¹⁰.

The redirect mode is described with reference to Fig. 11, which is reproduced in relevant part above for convenience of discussion¹¹. In *redirect mode*, the network request manager returns a web site address of the selected content server 106 or other suitable information to the client. Using this information, the client 104 re-transmits the client request to the identified web site address and receives the results directly from the selected content server¹². Again, in response to the client request, the network request manager selects an appropriate content server 106 using various dynamic and/or static metrics to select the content server most capable of servicing the client request¹³. However, the selected content server is responsible for processing the client request, including accessing data stored in the common data set 1102.

Hu '518 teaches in relevant part, a network switch that decodes object requests and forwards such requests either to a server for further processing or to a storage device in accordance with the nature of the transfer. The decoding operation is performed by the switch at a high protocol layer before the packet reaches a server in order to enable server bypass for storage oriented requests needing no processing by a server, as seen in Fig. 8, which is reproduced below for convenience of discussion.

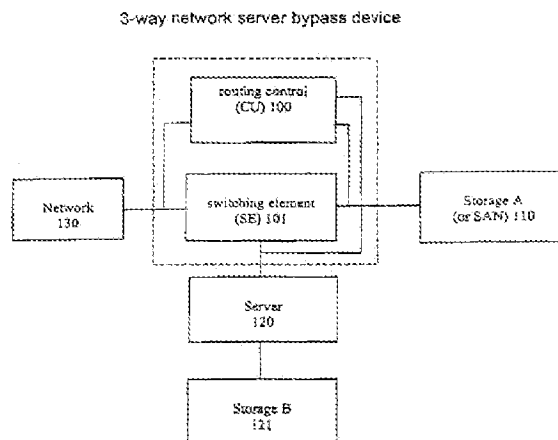


Figure 8 Top Level Function Diagram

¹⁰ See *Hu '322*, Col. 11, lines 3-16

¹¹ See *Hu '322*, Col. 3, lines 54-59; Col. 11, lines 17-34; Col. 12, lines 11-52; Figs. 9B, 11.

¹² See *Hu '322*, Col. 11, lines 17-27.

¹³ See *Hu '322*, Col. 12, lines 11-18;

In *Hu* '518, network traffic is categorized as server-oriented, which is forwarded to server system, or storage-oriented which is forwarded to storage without the direct involvement of the corresponding server¹⁴. The switching configuration thus allows network traffic to bypass the server system bus, operating system (OS) and CPU¹⁵. In *Hu* '518, an incoming user/client request is received from an Ethernet interface and is decoded at different layers from the Ethernet format and IP/TCP (312) format. In particular, the http header is parsed against an Expanded Routing Table residing in the Router. If a match is found, the subsequent data is forwarded per the router. Otherwise, the http payload is sent to the server for further processing. As an example, the system may snoop into the the HTTP headers for the nature of data (GET, POST, DELETE, application payload length.)¹⁶ and set the network traffic forwarding according to the information in the snooped packets.

Notably, a single initial web access request from the network is forwarded to the server. Once the server decides the access is legitimate, it sets up both the control unit and storage control. Subsequent traffic bypasses the server and is directly forwarded to the network interface for further transfer as described above, e.g., based upon whether the packets are server-oriented or storage-oriented. However, a new request from a user will be directed to server for processing, e.g., where the client accesses a new web page, area or different applications (windows)¹⁷.

Fielding is a published document that describes a standard HTTP redirect described by the Hypertext Transfer Protocol -- HTTP/1.1 Internet standards track protocol, identified as RFC 2068. The HTTP redirect is described in the appellant's specification at length¹⁸.

¹⁴ See *Hu* '518, Col. 5, lines 13-25.

¹⁵ See *Hu* '518, Col. 5, lines 4-12.

¹⁶ See *Hu* '518, Col. 5, lines 62-67

¹⁷ See *Hu* '518, Col. 8, line 30-Col. 9, line 24.

¹⁸ See appellant's published patent application U.S. Pat. Pub. No. 2003/0046335, paragraphs 41-47.

Analysis of claim 45:

It is the appellant's position that *Hu '322*, *Hu '518* and *Fielding*, even when combined, fail to teach or suggest returning a response message from a web server to a sender if at least one predetermined criterion is met, wherein the response message includes a location of an object on an associated storage device of an intelligent storage system, where the sender utilizes the response message to obtain the object from the intelligent storage system, as claimed.

Moreover, it is the appellant's position that *Hu '322*, *Hu '518* and *Fielding*, even when combined, fail to teach or suggest and serving the stored object from the intelligent storage system to the sender via the web server if the at least one predetermined criterion is not met, as claimed.

Hu '322 is completely silent with regard to, and fails to teach or suggest any form of intelligent storage system as claimed. Moreover, *Hu '322* is completely silent with regard to, and fails to teach or suggest returning a response message from a web server to a sender if at least one predetermined criterion is met, wherein the response message includes a location of an object on an associated storage device of an intelligent storage system, as claimed.

The Examiner points out that in *Hu '322*, the redirect mode causes a response to the sender with "whatever" information is necessary according to the particular wide-area network. However, this "whatever" information merely allows the client 104 to contact the content server directly, e.g., by providing the network address of the content server 106.

That is, the redirection in *Hu '322* simply provides the client with the URL of a content server selected by the network request manager. The content server is still responsible for processing the original client request, which may require the selected content server to interact with the corresponding common storage 1006 and 1102. However, there is no teaching or suggestion in *Hu '322* that the client can in any manner, directly access the common data storage 1006, 1102.

Correspondingly, there is no teaching or suggestion in *Hu* '322 that the content servers, the network request manager or any other device returns a response message to a request sender that contains a location of an object on an associated storage device, i.e., neither the content servers nor the network request manager return the location of an object stored within the common storage 1006 and 1102 to the requesting client.

Hu '518 describes the use of intelligent storage. However, *Hu* '518 is completely silent with regard to, and fails to teach or suggest any form of redirection. Thus, *Hu* '518 is also completely silent with regard to, and fails to teach or suggest returning a response message from a web server to a sender if at least one predetermined criterion is met, wherein the response message includes a location of an object on an associated storage device of an intelligent storage system, as claimed. Rather, *Hu* '518 relies on rules established for a network switch to intercept packets, snoop the packet contents and route the packets accordingly per the predefined rules.

Fielding, a published Hypertext Transfer Protocol -- HTTP/1.1 Internet standards track protocol, describes in general, HTTP redirection and is also completely silent with regard to, and fails to teach or suggest returning a response message from a web server to a sender if at least one predetermined criterion is met, wherein the response message includes a location of an object on an associated storage device of an intelligent storage system, as claimed.

Accordingly, when considering claim 45 *as a whole*¹⁹, the prior art references fail to teach or suggest all of the claimed limitations. For the reasons set out above, the Board is respectfully requested to reverse the Examiner's final rejection of claim 45 and corresponding dependent claims 46, 48-49, 51-73, 103 and 104.

As noted above, claims 82 and 87 recite similar elements in system and computer program product format respectively. As such, the arguments set forth herein apply by analogy to these claims. For the reasons set out above, the Board is also respectfully requested to reverse the Examiner's final rejection of claims 82 and 87 and corresponding dependent claims 83-85 and 88-95.

¹⁹ As required by 35 U.S.C. §103

Analysis of Examiner's Arguments with respect to claim 45:

Even if the references were to include each of the claimed elements, which the appellant asserts they do not, the Examiner failed to meet his burden of establishing a prima facie case of obviousness.

The Examiner acknowledges that the *Hu* '322 fails to teach an intelligent storage system²⁰. In this regard, the Examiner relies upon *Hu* '518 for the broad general teaching of an intelligent storage system²¹. Moreover, the Examiner acknowledges that both *Hu* '322 and *Hu* '518 fail to teach that the response message includes a location of the object on the intelligent storage device. In this regard, the Examiner relies upon the broad general teaching of the standard HTTP redirect as specified in *Fielding* for the teaching of HTTP redirection²².

However, the appellant believes that *Hu* '518 teaches away from that claimed. The claimed invention recites returning a response message from a web server to a sender (if at least one predetermined criterion is met), wherein the response message includes a location of an object on an associated storage device of an intelligent storage system. The sender then accesses the object directly. However, the essence of the invention of *Hu* '518 is a switch that snoops packets and routes data related requests so that the server never has to see or process requests that can be handled by intelligent storage directly. Moreover, the switch deliberately avoids sending any form of redirection back to the client, in favor of automatically forwarding storage-oriented data directly to an intelligent storage system based forwarding rules.

Moreover, in order for an Examiner to support a rejection based upon obviousness, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness²³. Correspondingly, mere conclusory statements are not enough to satisfy the burden of establishing obviousness. However, the appellant asserts that the

²⁰ See the Office Action made final, mailed 05/14/2007, page 4, third paragraph.

²¹ See the Office Action made final, mailed 05/14/2007, page 4, fourth paragraph.

²² See the Office Action made final, mailed 05/14/2007, page 5, third paragraph.

²³ See *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)

Examiner's stated motivations to combine the cited references rely on mere conclusory statements that are not supported.

In supporting the justification for the combination, the Examiner argues that one of ordinary skill in the art would have been motivated to combine the teaching of *Hu* '322 with the storage system taught in *Hu* '518 to include an intelligent network attached storage because it would have "...improved the overall system performance, throughput and quality of service (QoS)"²⁴. However, there is no indication that the system in *Hu* '322 was lacking overall system performance, throughput and quality of service. Indeed, these are the same attributes that the *Hu* '322 invention seeks to obtain.²⁵ The appellant respectfully asserts that the motivation provided by the Examiner is merely conclusory in nature and are unsupported.

Still further, even assuming *arguendo*, that the Examiner could make his combination, the combination still fails to teach or suggest the claimed limitations. For example, in *Hu* '322, the network request manager can dispatch client requests to any of a plurality of content servers, and each content server may access common data storage. If the storage systems in *Hu* '518 replace the common data 1006, 1102 in *Hu* '322, there is still no teaching or suggestion of returning a response message from a web server to a sender if at least one predetermined criterion is met, wherein the response message includes a location of an object on an associated storage device of an intelligent storage system, as claimed because in *Hu* '322, the content server services the client request²⁶.

That is, there is no teaching or suggestion that the content servers themselves can or would return a response message to the client if at least one predetermined criterion is met, wherein the response message includes a location of an object on an associated storage device of the Examiner's purported combination of the *Hu* '518 intelligent storage device, where the sender utilizes the response message to obtain the object from the intelligent storage system.

²⁴ See the Office Action made final, mailed 05/14/2007, page 5, first paragraph.

²⁵ See for example, *Hu* '322, Col 12, lines 25-35

²⁶ See *Hu* '322, Col. 4 lines 30-32.

The proposed modification cannot render the prior art unsatisfactory for its intended purpose²⁷. If the Examiner tries to assert that the intelligent storage could somehow replace the content servers, then the invention in *Hu* '322 would be rendered inoperable for its intended use. This can be seen because the content servers serve not only content but applications and perform other operations required to service client requests as described more fully herein. That is, non-content based client requests could not be serviced if the content servers were replaced with intelligent storage devices²⁸.

Moreover, the Examiner acknowledges that even *Hu* '322 and *Hu* '518 combined fail to teach returning a response message to the client where the response message includes a location of the object on the associated storage device of an intelligent storage system²⁹. As such, the Examiner relies on the HTTP redirect specification. In support of this further modification, the Examiner argues that one of ordinary skill in the art would be motivated to use the HTTP protocol for redirecting "... because it would have automatically redirected a client's request to an appropriate location ..."

Again, even assuming *arguendo*, that the Examiner could make his combination, the combination still fails to teach or suggest the claimed limitations. For example, in *Hu* '322, the network request manager already implements a redirection. However, it is the entire client request that is redirected, regardless of proxy or redirect mode. Moreover, as noted in detail above, the attempt to use an HTTP redirect command to redirect a client request would usurp the intent of *Hu* '518, as the forwarding function of the switch deliberately avoids the need to perform redirection.

In this regard, it appears to the appellant that the Examiner is not evaluating the claim as a whole, but is rather attempting to piece claimed elements identified in the prior art in a impermissible hindsight manner. However, the appellant respectfully submits that the claimed

²⁷ See M.P.E.P. 2143

²⁸ See also, *Hu* '322, Col. 4, lines 33-43.

²⁹ See the Office Action made final, mailed 05/14/2007, page 5, second paragraph.

recitations perform in combination in a manner different from the functions of the components identified by the Examiner individually as set out more fully herein.

Accordingly, when considering claim 45 *as a whole*, the prior art references fail to establish a prima facie case of obviousness. For the reasons set out above, the Board is respectfully requested to reverse the Examiner's final rejection of claim 45 and corresponding dependent claims 46, 48-49, 51-73, 103 and 104.

As noted above, claims 82 and 87 recite similar elements in system and computer program product format respectively. As such, the arguments set forth herein apply by analogy to these claims. For the reasons set out above, the Board is also respectfully requested to reverse the Examiner's final rejection of claims 82 and 87 and corresponding dependent claims 83-85 and 88-95.

1. C. Claims 74, 86 and 96 and the claims that depend therefrom are patentable over *the '322 patent in view of the '518 patent and Fielding*

With regard to claim 74, *Hu '322* in view of *Hu '518* and *Fielding* fail to teach or suggest at least:

A method of creating a link to an object... comprising receiving a request for a particular object that is stored in an intelligent storage system ... evaluating at least one characteristic of the particular object ... retrieving a redirect file that instructs a web server receiving the request to return a response message including the location of the requested object on the associated storage device of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied ... locating an object serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the evaluated at least one characteristic of the particular object is not satisfied.

Claims 74, 86 and 96 are directed to creating links to objects in a method (claim 74), system (claim 86) and computer program product (claim 96) format. The elements are analogous and the Examiner's basis for rejection of each of these claims is identical³⁰. As such,

³⁰ See the Office Action made final, mailed 05/14/2007, page 13, second full paragraph.

for relevant purposes herein, the arguments set out more fully herein apply by analogy. For purposes of discussion, claim 74 will be discussed.

Analysis of claim 74:

It is the appellant's position that *Hu* '322, *Hu* '518 and *Fielding*, even when combined, fail to teach or suggest at least the elements set out above.

Hu '322 is completely silent with regard to, and fails to teach or suggest receiving a request for a particular object that is stored in an intelligent storage system, as claimed. Rather, as noted in greater detail above, *Hu* '322 discloses the use of a network request manager that receives client requests and assigns a corresponding content server to service the request. The content server interacts with common data 1006, 1102 to respond to the client request.

Moreover, *Hu* '322 is completely silent with regard to, and fails to teach or suggest evaluating at least one characteristic of the particular object, retrieving a redirect file that instructs a web server receiving the request to return a response message including the location of the requested object on the associated storage device of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied. As noted in greater detail herein, *Hu* '322 has nothing to do with serving objects from an intelligent storage system. Moreover, even the content server selection itself, regardless of either proxy or redirect mode, is determined based upon content server metrics and not the evaluation of at least one characteristic of a particular object³¹. See also, the above discussion of *Hu* '322.

Further, there is no teaching or suggestion in *Hu* '322 that the content servers, the network request manager or any other device returns a response message to a request sender that contains a location of an object on an associated storage device, including the common storage 1006 and 1102 as described more fully herein.

Still further, *Hu* '322 is completely silent with regard to, and fails to teach or suggest, locating an object serving link that is utilized by the web server receiving the request to obtain

³¹ See *Hu* '322, Col. 9, line 19-Col. 10, line 61; Figs. 8A., 8B

the object from the intelligent storage system and return the object in response to the request if the evaluated at least one characteristic of the particular object is not satisfied. As pointed out in greater detail herein, *Hu* '322 has nothing to do with intelligent storage systems. Moreover, there is nothing in *Hu* '322 that suggests that the content servers, network request manager or any other component utilize object serving links to obtain requested objects from storage systems.

In *Hu* '322, rules and conditions are utilized to determine if client requests, which are processed entirely by content servers, should be proxied or redirected through a network request manager. *Hu* '322 does not address particular objects, storage of particular objects or whether particular objects should be retrieved directly by the request sender or via the server that is servicing the client request. For example, as noted above, the content servers service the entire client request, regardless of proxy or redirect mode with respect to the network request manager.

Hu '518 is also completely silent with regard to, and fails to teach or suggest evaluating at least one characteristic of the particular object, retrieving a redirect file that instructs a web server receiving the request to return a response message including the location of the requested object on the associated storage device of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied. To the contrary, *Hu* '518 intercepts packets, snoops the packet contents and relies on established rules for directing the switch in how to forward the snooped packets. Moreover, *Hu* '518 explicitly does not return response messages as described more fully herein.

Still further, *Hu* '518 is completely silent with regard to, and fails to teach or suggest, locating an object serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the evaluated at least one characteristic of the particular object is not satisfied. As pointed out in greater detail herein, *Hu* '518 uses a switch to determine how to forward packets. There is no need for object serving links as the server does not take part in selecting the manner in which data on the intelligent storage device is accessed. Rather, the switch intercepts packets before the server receives the client request for such content.

Fielding, a published Hypertext Transfer Protocol -- HTTP/1.1 Internet standards track protocol as noted above. Moreover, *Fielding* is completely silent with regard to, and fails to teach or suggest receiving a request for a particular object that is stored in an intelligent storage system. *Fielding* also has nothing to do with evaluating at least one characteristic of the particular object, retrieving a redirect file that instructs a web server receiving the request to return a response message including the location of the requested object on the associated storage device of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied or locating an object serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the evaluated at least one characteristic of the particular object is not satisfied.

Accordingly, when considering claim 74 *as a whole*, the prior art references fail to teach or suggest all of the claimed limitations. For the reasons set out above, the Board is respectfully requested to reverse the Examiner's final rejection of claim 74 and corresponding dependent claims 46, 48-49, 51-73.

As noted above, claims 86 and 96 recite similar elements in system and computer program product format respectively. As such, the arguments set forth herein apply by analogy to these claims. For the reasons set out above, the Board is also respectfully requested to reverse the Examiner's final rejection of claims 86 and 96 and corresponding dependent claims 97-98.

Analysis of Examiner's Arguments with respect to claim 74:

Even if the references were to include each of the claimed elements, which the appellant asserts they do not, the Examiner failed to meet his burden of establishing a prima facie case of obviousness.

Again, the Examiner acknowledges that the *Hu* '322 fails to teach an intelligent storage system³². In this regard, the Examiner again relies upon *Hu* '518 for the broad general teaching of an intelligent storage system³³. Moreover, the Examiner again acknowledges that both *Hu* '322 and *Hu* '518 fail to teach that the response message includes a location of the object on the intelligent storage device. In this regard, the Examiner again relies upon the broad general teaching of the standard HTTP redirect as specified in *Fielding* for the teaching that a response message includes a location³⁴.

However, the appellant believes that *Hu* '518 teaches away from that claimed. The claimed invention recites evaluating at least one characteristic of the particular object ... retrieving a redirect file that instructs a web server receiving the request to return a response message including the location of the requested object on the associated storage device of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied ... locating an object serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the evaluated at least one characteristic of the particular object is not satisfied.

However, as noted in greater detail herein, the essence of the invention of *Hu* '518 is a switch that snoops packets and routes data related requests so that the server never has to see or process the request. Moreover, the switch deliberately avoids sending any form of redirection back to the client, but rather utilizes switch based forwarding rules.

In supporting the justification for the combination, the Examiner reiterates the same arguments as set forth with regard to the rejection of claim 45. That is, the Examiner argues that one of ordinary skill in the art would have been motivated to combine the teaching of *Hu* '322 with the storage system taught in *Hu* '518 to include an intelligent network attached storage because it would have "...improved the overall system performance, throughput and quality of service (QoS)³⁵. However, as set forth more fully herein, there is no indication that the system in

³² See the Office Action made final, mailed 05/14/2007, page 10, last paragraph.

³³ See the Office Action made final, mailed 05/14/2007, page 11, first paragraph.

³⁴ See the Office Action made final, mailed 05/14/2007, page 11, third paragraph.

³⁵ See the Office Action made final, mailed 05/14/2007, page 5, first paragraph.

Hu '322 was lacking overall system performance, throughput and quality of service. Indeed, these are the same attributes that the *Hu* '322 invention seeks to obtain.³⁶ The appellant respectfully asserts that the motivations provided by the Examiner is merely conclusory in nature and are unsupported.

Still further, even assuming *arguendo*, that the Examiner could make his combination, the combination still fails to teach or suggest the claimed limitations. For example, in *Hu* '322, the network request manager can dispatch client requests to any of a plurality of content servers, and each content server may access common data storage. If the storage systems in *Hu* '518 replace the common data 1006, 1102 in *Hu* '322, there is still no teaching or suggestion of retrieving a redirect file that instructs a web server receiving the request to return a response message including the location of the requested object on the associated storage device of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied and locating an object serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the evaluated at least one characteristic of the particular object is not satisfied, as claimed. For example, in *Hu* '322, the content server is responsible for servicing the client request³⁷.

Also, the proposed modification cannot render the prior art unsatisfactory for its intended purpose³⁸. In a manner analogous to the arguments with respect to claim 45, if the Examiner tries to assert that the intelligent storage could somehow replace the content servers, then the invention in *Hu* '322 would be rendered inoperable for its intended use. This can be seen because the content servers serve not only serve content but applications and perform other operations required to service client requests as described more fully herein. That is, non-content based client requests could not be serviced if the content servers were replaced with intelligent storage devices.

³⁶ See for example, *Hu* '322, Col 12, lines 25-35

³⁷ See *Hu* '322, Col. 4 lines 30-32.

³⁸ See M.P.E.P. 2143

Moreover, the Examiner acknowledges that even *Hu* '322 and *Hu* '518 combined fail to teach returning a response message to the client where the response message includes a location of the object on the associated storage device of an intelligent storage system³⁹. As such, the Examiner again relies on the HTTP redirect specification. In support of this further modification, the Examiner argues that one of ordinary skill in the art would be motivated to use the HTTP protocol for redirecting "... because it would have automatically redirected a client's request to an appropriate location ..."⁴⁰

Again, even assuming *arguendo*, that the Examiner could make his combination, the combination still fails to teach or suggest the claimed limitations. For example, in *Hu* '322, the network request manager already implements a redirection. However, it is the entire client request that is redirected, regardless of proxy or redirect mode. Moreover, as noted in detail above, the attempt to use an HTTP redirect command to redirect a client request would usurp the intent of *Hu* '518, as the forwarding function of the switch deliberately avoids the need to perform redirection.

In this regard, it appears to the appellant that the Examiner is not evaluating the claim as a whole, but is rather attempting to piece claimed elements identified in the prior art in a impermissible hindsight manner. However, the appellant respectfully submits that the claimed recitations perform in combination in a manner different from the functions of the components identified by the Examiner individually as set out more fully herein.

Accordingly, when considering claim 1 *as a whole*, the prior art references fail to establish a prima facie case of obviousness. For the reasons set out above, the Board is respectfully requested to reverse the Examiner's final rejection of claim 1 and corresponding dependent claims 46, 48-49, 51-73.

As noted above, claims 86 and 96 recite similar elements in system and computer program product format respectively. As such, the arguments set forth herein apply by analogy

³⁹ See the Office Action made final, mailed 05/14/2007, page 11, third paragraph.

⁴⁰ See the Office Action made final, mailed 05/14/2007, page 12, first paragraph.

to these claims. For the reasons set out above, the Board is also respectfully requested to reverse the Examiner's final rejection of claims 86 and 96 and corresponding dependent claims 97-98.

2. Claim 50 is patentable over *Hu* '322 in view of *Hu* '518 and *Fielding* and further in view of *Dillon* '463.

Claim 50, rejected under the second ground of rejection, depends from claim 45. Thus, the appellant respectfully submits that the above dependent claim is patentable at least by virtue of its dependency upon a base claim that is believed to be allowable as set out in greater detail herein.

Conclusion

For all of the above reasons, the appellant respectfully submits that the pending claims define patentably over the applied prior art. Accordingly, it is respectfully requested that the Board reverse the Examiner's final rejection of claims 45, 46, 48-79, 82-98 and 103-104.

Respectfully submitted,
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Appendix A – Claims Appendix

1-44. (Cancelled)

45. (Previously Presented) A method of serving objects in a computing network, the method comprising:

receiving a request from a sender for an object stored on an intelligent storage system, the request being received by a web server, and the intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device;

evaluating the request for the object based upon at least one predetermined criterion;

returning a response message from the web server to the sender if the at least one predetermined criterion is met, wherein the response message includes a location of the object on the associated storage device of the intelligent storage system, and the sender utilizes the response message to obtain the object in a manner that bypasses the web server for outbound traffic from the intelligent storage system to the client; and

serving the stored object from the intelligent storage system to the sender via the web server if the at least one predetermined criterion is not met.

46. (Previously Presented) The method according to Claim 45, wherein returning a response message from the web server to the sender comprises:

informing the sender of the received request that a subsequent connection to the control unit should be established for serving the stored object.

47. (Cancelled)

48. (Previously Presented) The method according to Claim 45, wherein the response message comprises a redirect indication of an existing protocol.

49. (Previously Presented) The method according to Claim 48, wherein the existing protocol is Hypertext Transfer Protocol.

50. (Previously Presented) The method according to Claim 48, wherein the existing protocol is Wireless Session Protocol.

51. (Previously Presented) The method according to Claim 45, further comprising automatically requesting establishment of a subsequent connection between the sender and the intelligent storage system in response to the response message.

52. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises evaluating the request for the object based upon a size of the stored object.

53. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises comparing a size of the stored object to a statically specified number.

54. (Previously Presented) The method according to Claim 53, wherein the statically-specified number is specified by an administrator using a configuration interface.

55. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises comparing a size of the stored object to a dynamically-determined number.

56. (Previously Presented) The method according to Claim 55, wherein the dynamically-determined number is determined in view of the current network conditions.

57. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises evaluating a naming extension of the stored object.

58. (Previously Presented) The method according to Claim 45, wherein evaluating a naming extension of the stored object comprises determining whether a naming extension matches an element in a statically-specified set of naming extensions.

59. (Previously Presented) The method according to Claim 58, wherein the statically-specified set of naming extensions is specified by an administrator using a configuration interface.

60. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises determining whether a naming extension matches an element in a set of dynamically-determined set of naming extensions.

61. (Previously Presented) The method according to Claim 60, wherein the dynamically-determined set of naming extensions is determined in view of current network conditions.

62. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises evaluating the request for a name of the stored object.

63. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises determining whether an object name matches an element in a statically-specified set of object names.

64. (Previously Presented) The method according to Claim 63, wherein the statically-specified set of object names is specified by an administrator using a configuration interface.

65. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises determining whether an object name matches an element in a set of dynamically-determined set of object names.

66. (Previously Presented) The method according to Claim 65, wherein the dynamically-determined set of object names is determined in view of current network conditions.

67. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises evaluating a content type of the stored object.

68. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises determining whether a content type matches an element in a statically-specified set of content types.

69. (Previously Presented) The method according to Claim 68, wherein the statically-specified set of content types is specified by an administrator using a configuration interface.

70. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises determining whether a content type matches an element in a set of dynamically-determined set of content types.

71. (Previously Presented) The method according to Claim 70, wherein the dynamically-determined set of content types is determined in view of current network conditions.

72. (Previously Presented) The method according to Claim 45, wherein evaluating the request for the object based upon at least one predetermined criterion comprises using one or more wildcards which operate to match more than one stored object.

73. (Previously Presented) The method according to Claim 45, wherein the intelligent storage system comprises network-attached storage.

74. (Previously Presented) A method of creating a link to an object, the method comprising:

receiving a request for a particular object that is stored in an intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device;

evaluating at least one characteristic of the particular object;

retrieving a redirect file that instructs a web server receiving the request to return a response message including the location of the requested object on the associated storage device of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied, the response message being configured to redirect the request to the control unit of the intelligent storage system; and locating an object serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the evaluated at least one characteristic of the particular object is not satisfied.

75. (Previously Presented) The method according to Claim 74, wherein the redirect file enables returning a direct status code to a requester of the object.

76. (Previously Presented) The method according to Claim 75, further comprising requesting establishment of a subsequent connection automatically in response to receiving the redirect status code for retrieving the particular object directly from the intelligent storage system.

77. (Previously Presented) The method according to Claim 75, wherein contents of the redirect file are programmatically created.

78. (Previously Presented) The method according to Claim 75, wherein the contents of the redirect file are manually created.

79. (Previously Presented) The method according to Claim 74, wherein the intelligent storage system comprises network-attached storage.

80. (Canceled)

81. (Cancelled)

82. (Previously Presented) A system for serving objects in a computing network, comprising:

an intelligent storage system comprising a control unit configured to determine a mapping for a request for an object to a location on an associated storage device; and

a web server configured to receive the request by a sender for an object stored on the intelligent storage system, the web server being configured to evaluate the request based on at least one criterion, and if the at least one criterion is met, returning a response message to the sender to redirect the request to the control unit of the intelligent storage system, wherein the redirect code includes a location of the object on the associated storage device of the intelligent storage system, and the sender utilizes the response message to obtain the object in a manner that bypasses the web server for outbound traffic from the intelligent storage system to the client without transferring a corresponding session between the web server and the sender to a different web server, and if the at least one criterion is not met, to serve the stored object via the web server.

83. (Previously Presented) The system according to Claim 82, wherein the web server is configured to redirect the request to the control unit by sending information that a subsequent connection should be established for serving the stored object when the at least one criterion is met.

84. (Previously Presented) The system according to Claim 82, wherein the response message is configured to direct the sender to obtain the object from the intelligent storage system in a manner that bypasses the web server.

85. (Previously Presented) The system according to Claim 83, wherein the response message is of an existing protocol that automatically causes establishment of a subsequent connection between the sender and the intelligent storage system.

86. (Previously Presented) A system for creating a link to an object, the system comprising:

an intelligent storage system comprising a control unit configured to determine a mapping for a request for a particular object to a location on an associated storage device;

a web server configured to receive the request for the particular object and to evaluate at least one characteristic of the particular object;

wherein the web server is configured to retrieve a redirect file that instructs the web server receiving the request to return a response message including the location of the particular object on the associated storage device of the intelligent storage system, the response message being configured to redirect the request to the control unit of the intelligent storage system if the at least one evaluated characteristic of the particular object is met, and to locate an object serving link that is utilized by the web server receiving the request to obtain the particular object in response to the request if the evaluated characteristic of the particular object is not met.

87. (Previously Presented) A computer program product for serving objects in a computing network, the computer program product comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code configured to receive a request for an object stored on an intelligent storage system, the request being received by a web server, and the intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device;

computer readable program code configured to evaluate the request based on at least one criterion;

computer readable program code configured to return a response message from the web server to a sender if the at least one predetermined criterion is met, wherein the response message includes a location of the object on the associated storage device of the intelligent storage system, and the sender utilizes the response message to obtain the object in a manner that bypasses the web server for outbound traffic from the intelligent storage system to the client without transferring a corresponding session between the web server and the sender to a different web server; and

computer readable program code configured to serve the stored object via the web server if the at least one criterion is not met.

88. (Previously Presented) The computer program product according to Claim 87, wherein the computer readable program code configured to return a response message from the web server to a sender comprises:

computer readable program code configured to inform the sender of the received request that a subsequent connection to the control unit should be established for serving the stored object.

89. (Previously Presented) The computer program product according to Claim 88, wherein the response message is configured to direct the sender to obtain the object from the intelligent storage system in a manner that bypasses the web server.

90. (Previously Presented) The computer program product according to Claim 86, wherein the computer readable program code configured to return a response message from the web server to a sender comprises:

computer readable program code configured to use a response message of an existing protocol, and wherein receipt of the response message by the sender of the received request automatically causes the sender to request establishment of a subsequent connection between the sender and the control unit of the intelligent control system.

91. (Previously Presented) The computer program product according to Claim 88, wherein the at least one criterion is selected from one of a size of the stored object, a naming extension of the stored object, a name of the stored object, and a content type of the stored object.

92. (Previously Presented) The computer program product of claim 91, wherein the at least one criterion are statically-specified.

93. (Previously Presented) The computer program product of claim 91, wherein the at least one criterion is dynamically-determined.

94. (Previously Presented) The computer program product of claim 87, wherein the at least one criterion comprises one or more wildcards which operate to match more than one stored object.

95. (Previously Presented) The computer program product of claim 87, wherein the intelligent storage system comprises a network-attached storage.

96. (Previously Presented) A computer program product for creating a link to an object, the computer program product comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code configured to receive a request for a particular object in an intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device; computer readable program code configured to evaluate at least one characteristic of the particular object;

computer readable program code configured to retrieve a redirect file that instructs a web server receiving the request to return a response message including the location of the particular object on the associated storage device of the intelligent storage system, the response message being configured to redirect the request to the control unit of the intelligent storage system if the at least one evaluated characteristic of the particular object is satisfied; and

computer readable program code configured to locate an object serving link that is utilized by the web server receiving the request to obtain the object from the intelligent storage system and return the object in response to the request if the at least one evaluated characteristic of the particular object is not satisfied.

97. (Previously Presented) The computer program product according to Claim 96, wherein the redirect file enables returning a redirect status code to a requester of the object.

98. (Previously Presented) The computer program product according to Claim 97, further comprising computer readable program code configured to request establishment of a subsequent connection automatically in response to receiving the redirect status code for retrieving the particular object directly from the intelligent storage system.

99-102. (Canceled)

103. (Previously Presented) The method according to claim 45, wherein the receiving a request from a sender for an object stored on an intelligent storage system, the request being received by a web server, and the intelligent storage system comprising a control unit configured to determine a mapping for the requested object to a location on an associated storage device further comprises:

providing a web server within the intelligent storage system capable of processing HTTP redirect messages.

104 (Previously Presented) The method of claim 45, wherein the returning of a redirect code from the web server to the sender further comprises:

obtaining a redirect file stored on the web server that identifies the location of the object on the intelligent storage system.

Appendix B – Evidence Appendix

There is no information for this appendix

Appendix C – Related Proceedings Appendix

There is no information for this appendix